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# A path of roses and financial literacy: exploring the usability of UK's digital banking services to improve younger adult adoption.

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## ABSTRACT

Digital retail banking is a prominent method for customers to interact with their banks. However, over the last decade the banking industry has experienced a slowing of digital retail banking adoption rates worldwide, especially in younger adults. Scholars attribute this adoption slowdown on the dissimilar growth of adoption rates and development maturity of digital retail banking applications, where the adoption rates have summited faster than development maturity. As UK banks are advancing their capabilities in digital banking, to the extent of replacing traditional branches with self-service kiosks, it becomes essential to design usable applications for customers. In retail banking, younger customers tend to continue banking as they age with the institution of their first business, hence it becomes essential for banking institutions to provide mature digital services to attract and retain the digital natives. A focussed survey and interviews conducted by the research team indicates that younger adults find the current user-interfaces impede cognitive and visual access to information and are not user-specific. Additionally, it was also found that their lack of financial knowledge and information deters them from using various features and products provided digitally by the banks. Therefore, it appears that inculcation of accessible financial information and user-specificities into the design of digital banking applications, in addition to offering giveaways could improve user adoption rates in young adults.

## CCS Concepts

CCS → Human-centered computing → Accessibility → Accessibility design and evaluation methods

## Keywords

digital banking; banking services; internet banking; service adoption; development maturity; information services

## 1. INTRODUCTION

Information and communication technologies (ICTs) have transformed living over the past several decades. Many service and financial sector institutions now offer a variety of digital services to their customers. Digital banking (both mobile and internet) is one such service offered by banks to their customers, primarily in the forms of mobile (app based) and internet banking (web browser based). With internet and mobile adoption rates increasing yearly along with several micro and macro finance offerings by various institutions around the world [36, 67], digital banking is set to play a significant role in various aspects of life [91]. Currently it is estimated that two billion people use digital banking services, about 40% of the global adult population [49]. Specifically to mobile banking, Shaikh and Karjaluo, suggest that almost 50% of mobile phone subscribers' access to digital banking services is limited, hence offering an opportunity for many banks to grow their customer base [83].

Despite the increasing internet and mobile adoption rates, the service adoption rate of digital banking is either plateauing or decreasing due to digital banking offerings not being mature enough [90]. Therefore, research into the factors which facilitate digital banking service adoption requires continuous exploration. Current research work in digital banking adoption has led to an understanding that various factors such as technological infrastructure, trust, perceived usefulness, assurance and security, ease of use, information quality and social influence etc. determine the adoption rates [8]. Recently, academics as well as banking institutions have begun to focus intently on user experience to drive digital banking adoption rates [86, 78], paying particular attention to design elements [81]. This study exclusively focusses on young adults in the age range of 18 to 35 in the UK, seeking to understand the design factors influencing their decision to adopt and continue using digital banking services.

## 2. BACKGROUND

### 2.1 Adoption of digital banking services

Davis et al's 1989 technology acceptance model (TAM) first provided an explanation of various factors influencing a user's acceptance of a digital information system, which primarily are perceived usefulness and perceived ease of use [24]. Thereon several scholars had made observations which can be broadly classified as usability, various perceptions, infrastructure, socio-economic, gender and cultural factors being responsible for adoption of information services [6, 71,

80, 87, 88]. Specific to digital banking, scholars observed a variety of factors influencing users either adopt (for the first time) and continue using digital banking applications. In the pre-adoption stage, according to Shaikh and Karjaluo, perceived usefulness and perceived ease of use influences a potential user's decision to adopt digital banking [83]. Additionally, the same factors are responsible for a user's decision to continue using the adopted application [95]. Lewis et al find that potential users [59], who are venturesome by nature, adopt and adapt faster to information services like digital banking [73]. Similarly, consumer's ability to trust was found to influence both adoption and continued use of online banking services [29, 63, 69]. Trust in the virtual banking system, the actual (physical) banking institution and insurances offered by the banking institutions influence a user's decision to adopt and continue with a bank [54, 71, 83].

Influence of peers and the community also affects a consumer's decision to adopt and continue using digital banking according [50, 59, 60, 96], indicating that peer influence theory must be acknowledged by banks when designing their digital financial services [70, 72]. Another significant set of factors which chiefly affects post-adoption satisfaction are the quality of services offered by the digital banking applications. These factors, according to Montazemi and Qahri-Saremi are classified under information quality, system quality and service quality [71]. High quality information which is precise, complete, consistent and frequently updated appears to come across as more useful for consumers and hence consumers appear to rating highly the digital banking institutions offering high quality information services [40, 62]. Under system quality, factors i.e. interface design, navigation, speed, accessibility and flexibility appear to encourage consumers to continue using digital banking services [11, 41, 95, 96]. Service quality in adoption and continuation of digital banking is reliant on various customer service related factors such as knowledge, empathy, speed of resolution and added benefits etc. [20, 52, 53, 71].

## 2.2 Digital banking adoption in young adults

In young adults the factors which influence both adoption and continued use are perceived usefulness, risk, compatibility and overall general performance, especially in the mobile banking segment [1, 55]. According to Koenig et al digital banking needs to be compatible with the lifestyle of young adults and is compatible with their devices for adoption to succeed [55]. Koenig et al further explains that young adults would be drawn to mobile banking as they believe their mobile phone is an extension of themselves [55]. It was further found by Liébana-Cabanilla et al that for younger adults to adopt any digital banking technologies it is essential to design systems which are not only compatible to their devices and lifestyles, but also should be customisable in accordance to their lifestyles [61]. Additionally, Gao et al suggest innovativeness of a service also corresponds to positive adoption of a service, especially when perceived usefulness is high along with actual usefulness [34]. Moreover, the digital natives' adoption rates of digital banking services appear to increase when any new service is perceived useful in the near future [56, 57].

## 2.3 Personalisation and innovation in digital banking services for young adults

Offering good quality digital banking services benefits a banking institution in terms of income generation [9, 14], building brand image [31], building customer relationships, especially with young users and digital natives [55]. The

digital banking adoption rates had seen a significant rise over the last decade, however, some countries i.e. the United States are experiencing a slowdown of the adoption rate and the slowdown is predicted to spread to other countries [39, 90, 93]. Academic scholars and business leaders attribute this slowdown to higher adoption rates in the last decade compared against maturity of digital banking services [39, 68, 90, 93].

To attain maturity of digital banking services, banking institutions need to improve on various aspects such as customer's trust, service and infrastructure quality, influence and usefulness etc [2, 71]. Additionally, user experience in using digital information services is another aspect currently researched by scholars, which can be applied to the digital banking sector to improve adoption rates [3, 19, 38, 46]. It's also recently suggested that banks offer more user specific services i.e. student banking and design the adoption influencing factors, vis-à-vis service quality, information quality and system quality specific to the user. Currently, amongst the younger adults, from a systems quality and technology acceptance perspective it is only known that digital banking services should offer services which are compatible with infrastructure and devices, fulfils needs and averts any security risks to maintain adoption rates [55, 83, 84, 94]. Hence, banks need to shift their focus towards user experience [9, 10]. For banking institutions it is essential to focus on young adults as they tend to continue banking with their first institution into later age, hence offering the banks guaranteed customers for the future [7, 27, 77]. With banks digitising their operations and customer interactions considerably, it becomes essential to design appropriate digital banking services in an attempt to engage younger users. Hence this research attempts to identify:

1. What service quality factors influence young users to adopt and continue using a digital banking service in the UK?
2. What information quality factors influence young users to adopt and continue using a digital banking service in the UK?
3. What user experience factors influence young users to adopt and continue using a digital banking service in the UK?

## 3. METHODOLOGY

The study was conducted in two parts. The first part involved conducting a survey to explore the usage, services offered and user-experience factors which influenced their decision to choose their current bank. The study employed snowball purposive sampling, specifically focussing on young adults to respond to the questionnaires [28, 82]. Within the questionnaire, the survey respondents were requested to participate in an interview to further understand their usage, service quality, information quality and user experience of various services offered through their digital banking services, which forms the second part of the study. Necessary ethical clearances were obtained through the authors' institution, the interview participants' consent was obtained as part of the interviews and their anonymity was maintained through a coding system. The survey was conducted from November 2017 to January 2018 and the survey participants were contacted through emails and social media posts. The participants were requested to respond to 16 questions regarding general demographics, service quality, information quality and general user experience with their banks (questionnaire attached to Appendix A). Additionally, factors which influenced their initial decision to choose their banking institution were requested. Demographic information included age, banking institution and type of account. From the

findings of the questionnaire, some of the interview questions were altered to shed more light on the usage of digital banking services influenced by various quality factors.

Out of the 153 questionnaire responses, 29 agreed to be interviewed. A naturalistic inquiry was applied by using semi-structured interviews to obtain the participants' views of the digital banking services of their banks in general [26]. A sample of interview questions is attached in Appendix B. Semi-structured interviews were chosen as they offer flexibility to explore any interesting sections during the conduct of the interview [43]. Although the research applied interpretivist methods, a pragmatic approach into classifying the findings into the three quality factors, information, user-experience and services was performed [37]. Interviews were conducted either in-person or over the phone and ranged between 10 to 20 minutes. Although this study is not conducted using grounded theory, the interpretation and coding of themes used a grounded theory approach [17, 35].

## 4. FINDINGS

### 4.1 Participants

Out of the 153 responses, 11 responses were excluded as they fell outside our 18 to 35 age bracket or did not use any digital banking applications. 56% of the participants were male, 42% were female and the remaining 2% other. A breakdown of various banking institutions primarily used by the respondents is provided in figure 1. Santander appears to be the 'primary' choice of the respondents, followed by Lloyds, Barclays, NatWest and HSBC. Other banks were recorded as TSB, Halifax, RBS, Yorkshire Bank and First Direct etc. In terms of proximity (walking distance) to a nearest branch, 15% were within 5 minutes, 52% were between 6 to 15 minutes, 23% were between 16 to 30 minutes and 10% over 30 minutes. Only the 'primary' bank was recorded as some respondents had multiple bank accounts. 73.8% of the respondents stated that their current bank was their first ever bank and the remaining stated that their current bank was a switch. Primary factors, which led to the switch included better rates (64.4%), new member offers (54.8%) such as free rail card and cash rewards etc., availability of digital banking (38.5%), better customer services (31.9%) and recommendations from family and friends (26.4%) etc. Out of all the respondents 60.7% held a Student Account, 35.2% held a form of Graduate Account and 4.1% possessed some form of a general Current Account. Finally, almost none of the respondents indicated that their access to digital banking services and the branch is impeded. However, concerns regarding security, time constraints, website navigation and accessibility, device compatibility and mobile internet coverage were registered.

### 4.2 Usage

Nearly 50% of the respondents preferred to open their bank account or sign-up for a new service at a branch and the remaining 50% preferred a digital service for the same purposes. 80% of the respondents' primary mode of access to digital banking is through phone applications (apps), whereas for the remainder 20%, it was online banking via a web browser. In terms of visiting a branch for any other purposes, 68% of the respondents visited the branch less than once a month, 23.2% visited the branch once or twice a month and 8.8% had never visited the branch after opening their account. In terms of weekly usage, 36.6% of respondents used their banks digital services every day, 33.5% used it more than once a week, 10.7% used it once a week and 19.7% used it less than once a week. Frequently performed activities on their respective digital banking applications included checking account balance and statements (90.57%), money transfers

between accounts (73.58%), making bill payments and paying other people (62.26%), account management activities such as pin changes (3.77%) and managing rewards (13.21%). When asked how could their bank support their move to digital banking services, 40% of the respondents wanted faster login features, 33.3% wanted various banking services available via digital banking, 66.6% wanted an active rewards program, 52% wanted guidance on their spending, 38% wanted easy payment features, 42% preferred having spending alerts sent to their phones and 32% wanted credit score updates.

### 4.3 Interview findings

The codes (table 1) in the interview were structured around the three quality factors (overarching themes) which influence digital banking adoption amongst young adults which are service quality, user-interface quality and information quality.

**Table 1: Codes and sub-codes covering the service, user-experience and information needs of young adults**

Theme	Sub-code	%
Service	Discounts/Coupons/Offer	28
	Cash bonus	26.8
	Rewards program	19.6
	Spending guide	12.5
	Savings and investment features	9
	Alerts	4
	<b>Total</b>	<b>100</b>
User-experience	Navigation and layout	44.4
	Search & Find	22.2
	User specific features	16.6
	Constant change	11.1
	Standardisation	5.7
	<b>Total</b>	<b>100</b>
Information	Financial product information	43.5
	Other services information	36.1
	Irrelevant information	20.4
	<b>Total</b>	<b>100</b>

Almost 96% of the respondents held a form of student or graduate account and were at a stage of life where there is growing financial burden, financial independence, growing ability and need to earn. In the premise of service quality factors, it appears that money saving offers like discounts and coupons from the banking institution, especially through mobile banking platforms encourages young adults to adopt and continue using digital banking services. In terms of initial adoption, cash rewards appear to encourage the respondents to either switch banks or decide their first banking institution. Additionally, the respondents also inclined towards continuing with a banking institution when any free cash rewards and spending rewards are offered. Unremarkably, as the respondents were mostly students, it was also found that online spending insights and guides offered by the bank encouraged them to both adopt and continue using a banking institution. Regular saving, investment and any saving based features also appeared to encourage the respondents to either adopt or continue with a banking institution. Most banks nowadays in the UK offer some form of savings and investment features i.e. rounding off spending to invest in

shares and regular savers. However, most respondents quoted "I don't know how..." and "I don't understand how it works..." when asked why they haven't used the savings or investment services offered by their banks. Although necessary information is available on the bank's websites regarding these services, it appears to be inadequate, going by the interview responses. Additionally, most respondents preferred the availability of all internet banking features and information on mobile banking as they had to "complete several steps of authentication....." to access internet banking. Lastly, the respondents' preferred instant alerts on their mobile phones regarding any spending related activities either in the form of text messages or mobile application alerts. From the respondents there is a clear message that all banking features be available through their mobile banking applications, including any type of information which is easy to understand. As Koenig et al observes [55], younger adults believe that their mobile phone is an extension of themselves, banking institutions need to inculcate all banking features in comprehensible formats into their mobile banking applications to encourage younger adult adoption and continued use.

The respondents indicated that navigation of the website along with the application was an important aspect to adopt and continue using digital banking services. Within the interviews, some either complained or praised their banks digital banking services with respect to navigating to different features within the website/application and the layout, specifically focussing on classification of features (i.e. Payments => International payments) and general aesthetics. There is an evident need for a minimalist interface, eloquently described by a respondent to "...remove unrelated clutter". In complement to a simple interface, the respondents also preferred the features available be restricted to user specific only. This appears to contradict their previous requirement of making all information and features available. Related to navigation, the respondents suggested that visual and cognitive searching for information and services was important. Easier access to information and features appears to encourage respondents to continue banking with their institution, however, it is not clear if it would have any influence on initial adoption. Further, the respondents commented that the banking applications need to change constantly in line with various features becoming available and in a negative connotation, stated that the constant change is affecting how they use the mobile banking or internet banking service. Furthermore, the respondents, especially the ones who had switched their banking institutions found the both the websites and the applications different in terms of user interface features, and preferred standardisation intra-institution standardisation (between mobile and internet banking) and inter-institution standardisation (same across the banking sector). The respondents stated that although financial information is available for queries, comprehensibility of the information is currently difficult. This appears to be the main reason why the respondents are hesitant to use various financial features and products made available by their banking institution.

In a few cases, respondents stated that their mobile banking application is not as comprehensive as internet banking when providing financial information. Both these factors are clearly preventing the respondents from gaining financial literacy with regards to products and services, and hence impeding them to sign up for any finance products. Additionally, the respondents also voiced their concern in being unable to understand various products' information due to inaccessible language and the medium through which the information is made available on the digital banking services. One participant commented "...all this goes over my head..." when

questioned about their understanding of financial information (in this case the definition of AER and the availability of regular saver account offered by their bank). Another commented that she had to "...dig deep to find..." necessary information within a bank's digital banking services. Similarly most respondents preferred the exclusion of any information or features within the digital banking services offered.

#### **4.4 Path of roses and financial literacy**

From the questionnaire and the interview findings it is evident that the respondents would adopt and continue using digital banking services which offered them cash rewards, discounts/coupons and features to assist their spending habits. These are specifically service-related factors. In terms of user experience factors, the respondents preferred that their digital banking services were more user-specific, consists of information about financial and other products, whose language and cache are accessible. For these set of findings, the moniker, path of roses was decided. The respondents also stated that they were indeed interested in various financial offerings from banking institutions, however, state that the current financial information about various products is challenging to comprehend or in some cases there is no financial information at all. Moreover, the respondents are in the stage of life where financial burden, growth and earning potential increases and hence, is the reason behind their interest in financial products relating to savings and investments.

### **5. DISCUSSION**

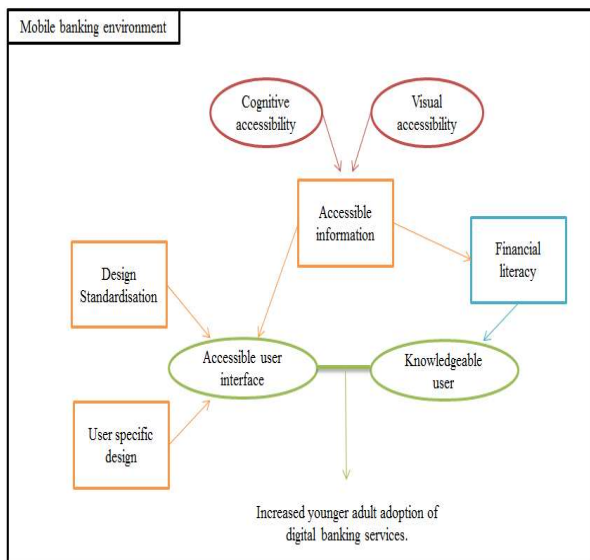
#### **5.1 Strong mobile focus**

From the findings it is clear that younger adults would prefer to access their digital banking services via mobile services. Reasons for this preference are convenience, persistent connectivity, mobility and advanced authentication capabilities. Dauda and Lee find a similar preference towards mobile based banking services in a general sample [23]. With developments in mobile technology in regards to security features i.e. iris scans and fingerprint authentication, banking applications need to continuously innovate along the developments of mobile phones as the future is about mobile computing [15, 22, 51, 84]. Additionally, the respondents stated the need for the availability of all information on their mobiles, as currently some of them had to login to their internet banking accounts or search elsewhere on the websites to access further information. As stated earlier, Koenig et al finds younger adults' belief in mobile phones part of their self and hence would incline towards its usage [55]. Current research in banking applications indicates the requirement of several reforms to reach maturity in general [75], however, currently there are no eventual yardsticks but the idea of continuous improvements with time [30].

#### **5.2 Financial information accessibility**

Accessibility to financial information is made up of two parts. Firstly, the ability to cognitively understand the information presented about finances (i.e. AER - annual equivalent rate) and different finance products offered etc. Secondly, it is the ability to visually locate the necessary financial information within the digital banking service. The findings indicate that younger adults currently find it difficult to both cognitively understand and visually locate any financial information in digital banking services. This is not surprising as several scholars found that financial information provided to consumers through the banking institutions does not necessarily educate the consumers [5, 12, 13, 64, 92]. Although in its current state the financial literacy in younger

adults around the world is alarmingly low [4, 25, 65, 66], the findings indicate an interest to learn various aspects of finance through digital banking services. However, the banking institutions firstly need to make financial information accessible as it offers the banks an opportunity to not only increase their digital banking services adoption and continuation, but also increase their customer base.



**Figure 2: Strategy to increase younger adult usage of digital banking services**

### 5.3 Dichotomy of information and features availability

The respondents expressed two polarised views on the availability of information through digital banking services. The first view expressed to make available all information, related or not, that the banking institution has to offer within their digital banking services, especially mobile banking. The second view expressed clearing of unnecessary and unrelated information and features to streamline the user interface. This difference in end-user information needs is common and can be addressed using various techniques [21, 44, 74]. This difference in needs can be addressed by both technological solutions and demand based solutions, however, technological solutions offer the flexibility. For example, using adaptive ranking systems for information retrieval [18, 45], the users' frequently performed activities could be recorded, ranked and made available within the immediate interface. Less frequently performed activities could be made available either through a search interface or a collapsible menu. Additionally, recent developments in machine learning applications could be used to learn the users' behaviour in the use of apps/online banking to address this dichotomy.

### 5.4 Design standardisation

Standardisation of intra-bank digital services with regards to layout and navigation can address some of the design inconsistencies experienced by the respondents. Perhaps device rendering to ensure internet banking can be used comfortably and consistently across various devices [16], in addition to following a memorable uniform design framework for the graphical user interface could be applied [48, 58, 76, 79, 85]. Some of the respondents complained about the inconsistencies of design between different banking institutions. Perhaps encouraging the banking sector to follow specific design standards suggested by ISO9241-16 and W3C could help [33, 47, 89].

## 6. CONCLUSION

Digital banking adoption rates have been plateauing slowly in most western societies due to the dissimilar growth patterns in adoption rates and development maturity of digital banking services, with the adoption rates summing faster. With banks constantly digitising their operations and customer facing processes, it becomes necessary to improve and increase the capabilities of digital banking services. In order to encourage user adoption and continuation, banking institutions need follow a perpetual path for continuous improvement of the digital banking services they offer. This research work specifically focusses on the service, user experience and information factors which would further encourage young adults' adoption and continued usage of digital banking services. Employing a questionnaire and conducting semi-structured interviews, we find that there is an increasing interest in younger adults to become financially literate through mobile banking services. However, in its current form, younger adults find information and financial features/products offered by the banks through their digital banking services are cognitively and visibly inaccessible. Additionally, young adults' find the user-interface of their banks disorganised and not personalised to their expectation. This perhaps is causing the plateau in digital banking services adoption and continued use. It is therefore envisaged that younger user adoption and continuation of digital banking services can be increased by focussing on mobile banking technologies, improving the accessibility of financial information and products offered, building personalised interfaces and standardisation of user interface design. Limitations wise, this study employed a small sample restricted to the UK, hence the findings in their current form are difficult to generalise. However, a larger longitudinal study implementing usability testing of the recommended factors could shed a clearer picture on what encourages younger adults to adopt and continue using digital banking services.

## 7. ETHICS CLEARANCE, COMPETING INTERESTS & AUTHOR STATEMENT

Necessary ethical clearances were obtained from the University's research administration and this research work did not receive any form of funding. The Venture Matrix Consultants' team consists of Olga Gesiorska, James Kennedy, Jake Orpin, Angus Pollard, Kays Zafar, Jack Molloy, Joe Woolmer, Liam Moore, Dominic Lord and Charlie Smith.

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